

# MATERIAL DECLARATION SHEET



Material Number	86-L Cermet (Dual Cup)			
Product Line	Panel Control			
Compliance Date	September 30, 2005			
RoHS Compliant	Yes	MSL	N/A	

No.	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous Material/ Substances	CASRN if applicable	Materials Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)
1	Rotor Driver	Zinc	0.968	Zinc	7440-66-6	72	3.920	5.455
				Aluminum	7429-90-5	25	1.361	
				Copper	7440-50-08	3	0.163	
2	Shaft	Brass	6.499	Copper	7440-50-8	61.5	22.841	36.555
				Zinc	7440-66-6	35.50	12.977	
		Plating	0.00593	Nickel	7440-02-0	100	0.033	0.033
3	Rivet X4	Aluminum	0.902	Aluminum	7429-90-5	93.5	4.744	5.074
				Chromium	7440-47-3	1	0.051	
				Copper	7440-50-8	3	0.152	
				Iron	7439-89-6	0.7	0.036	
				Magnesium	7439-98-5	0.5	0.025	
				Manganese	7439-96-5	0.2	0.010	
				Silicon	7440-21-3	0.8	0.041	
				Zinc	7440-66-6	0.25	0.013	
4	Substrate	Ceramic	0.3	Aluminum Oxide	1344-28-1	95	1.603	1.687
				Silicon Oxide	7631-86-9	1	0.017	
				Magnesium Oxide	7309-48-4	2	0.034	
				Calcium Oxide	1305-78-8	2	0.034	

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5	Termination Ink	Ink	0.003	Silver	7440-22-4	75	0.013	0.017
				Palladium	7440-05-3	10	0.002	
				Disbismuth-trioxide	1304-76-3	10	0.002	
				Ruthenium(IV)oxide	12036-10-1	1	0.0002	
				Silicon dioxide	7631-86-9	1	0.0002	
				Nickel-monoxide	1313-99-1	1	0.0002	
				Lead-monoxide	1317-36-8	1	0.0002	
6	Resistive Ink	Ink.	0.0015	Ruthenium(IV)oxide	12036-10-1	12.11	0.001	0.008
				silver	7440-22-4	10.11	0.001	
				Palladium	7440-05-3	12.11	0.001	
				Diboron-trioxide	1303-86-2	1.05	0.0001	
				Aluminum oxide	1344-28-1	3.05	0.0003	
				Lead-monoxide	1317-36-8	19.11	0.002	
				Silicon dioxide	7631-86-9	14.11	0.001	
				Calcium Oxide	1305-78-8	1.05	0.0001	
				Dibismuth-trioxide	1304-76-3	11.11	0.001	
				Digadolinium-trioxide	12064-62-9	14.12	0.001	
				Proprietary Ingredients		2.05	0.0002	
7	Resistive Ink	Ink.	0.0015	Ruthenium(IV)oxide	12036-10-1	14.12	0.001	0.008
				silver	7440-22-4	4.06	0.0003	
				Palladium	7440-05-3	4.06	0.0003	
				Diboron-trioxide	1303-86-2	2.06	0.0002	
				Aluminum oxide	1344-28-1	4.06	0.0003	
				Lead-monoxide	1317-36-8	25.12	0.002	
				Silicon dioxide	7631-86-8	15.05	0.001	
				Dibismuth-trioxide	1304-76-3	12.12	0.001	
				Digadolinium-trioxide	12064-62-9	13.12	0.001	
				Proprietary Ingredients		6.18	0.001	

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8	Terminal Wire	Copper	0.03	Copper	7440-50-08	100	0.169	0.169
		Plating	0.0015	Tin	7440-31-5	100	0.008	0.008
9	Pot Wiper	Strip Laminated	0.05	Copper	7440-50-8	70	0.197	0.281
				Zinc	7440-66-6	30	0.084	
		Spacer Strip	0.04	Nickel	7440-02-0	18	0.040	0.225
				Copper	7440-50-08	65	0.146	
				Zinc	7440-66-6	17	0.038	
		Solder Inlay	0.0015	Tin	7440-31-5	94.5	0.008	0.008
				Silver	7440-22-4	5.2	0.0004	
				Bismuth	7440-69-9	0.30	0.00003	
		Nickel Wire	0.03	Nickel	7440-02-0	18	0.030	0.169
				Copper	7440-50-8	65	0.110	
Zinc	7440-66-6			17	0.029			
10	Pot Rotor	PBT	0.5293	Glass	65997-17-3	25	0.744	2.977
				Poly(butylene terephthalate)	30965-26-5	65	1.935	
				Antimony Compounds	7440-36-0	5	0.149	
				Antimony Oxide	1309-64-4	5	0.149	
11	Secondary Pot Housing	PBT	0.577	Glass	65997-17-3	25	0.811	3.245
				Poly(butylene terephthalate)	30965-26-5	65	2.110	
				Antimony Compounds	7440-36-0	5	0.162	
				Antimony Oxide	1309-64-4	5	0.162	
12	Primary Pot Housing	PBT	1.9653	Glass	65997-17-3	25	2.764	11.054
				Poly(butylene terephthalate)	30965-26-5	65	7.185	
				Antimony Compounds	7440-36-0	5	0.553	
				Antimony Oxide	1309-64-4	5	0.553	

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13	Lube (Shaft)	Grease	0.003	Siloxanes and Silicones, di-Me, di-Ph	68083-14-7	68.9	0.012	0.017
				Lithium Stearate	4485-12-5	25.3	0.004	
				Silane, dichlorodimethyl-, reaction products with silica	68611-44-9	4.7	0.001	
				Diphenylamine	122-39-4	0.89	0.0002	
14	Bushing	Aluminum	0.9	Silicon	7440-21-3	0.7	0.035	5.062
				Iron	7439-89-6	0.34	0.017	
				Copper	7440-50-8	0.34	0.017	
				Manganese	7439-96-3	0.09	0.005	
				Magnesium	7439-98-5	0.9	0.046	
				Chromium	7440-47-3	0.09	0.005	
				Zinc	7440-66-6	0.05	0.003	
				Titanium	7440-32-6	0.02	0.001	
		Aluminum	7429-90-5	97.47	4.934			
Plating	0.0008219	Nickel	7440-02-0	100	0.005	0.005		
15	Rear Cover	Stainless Steel	0.92	Carbon	7440-44-0	0.01	0.001	5.175
				Manganese	7435-96-5	1.84	0.095	
				Phosphorus	7723-14-0	0.03	0.002	
				Sulfur	7704-34-9	0.002	0.0001	
				Silicon	7440-21-3	0.1	0.005	
				Chromium	7440-47-3	18.61	0.963	
				Nickel	7440-02-0	9.9	0.512	
				Molybdenum	7439-92-1	0.42	0.022	
				Copper	7440-50-8	0.37	0.019	
				Nitrogen	7727-37-9	0.05	0.003	
				Iron	7439-89-6	68.66	3.553	

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16	Front Cover	Stainless Steel	0.716	Carbon	7440-44-0	0.15	0.006	4.027
				Manganese	7435-96-5	2	0.081	
				Silicon	7440-21-3	1	0.040	
				Chromium	7440-47-3	19	0.765	
				Nickel	7440-02-0	10	0.403	
				Iron	7439-89-6	67.8	2.731	
17	Washer	PTFE	0.007	Polytetrafluoroethylene	9002-84-0	15	0.006	0.039
				1-Dichloro-1-Fluoroethane	1717-00-6	85	0.033	
18	Spring Washer	Beryllium Copper	0.031	Copper	7440-50-8	98.1	0.171	0.174
				Silicon	7440-21-3	0.2	0.0003	
				Beryllium	7440-41-7	1.5	0.003	
				Aluminum	7429-90-5	0.2	0.0003	
19	Lube (Element)	Grease	0.003	Decanoic acid, mixed esters with heptanoic acid, octanoic acid	68130-53-0	54.4	0.009	0.017
				Lithium 12-hydroxystearate	7620-77-1	5.7	0.001	
				Isohexadecyl-isoctadecanoate	52006-45-8	33.7	0.006	
				Polyisobutylene	9003-27-4	6.2	0.001	
20	Fixed Blade/Terminal X 2	Brass	0.078	Copper	7440-50-8	70	0.307	0.439
				Zinc	7440-66-6	30	0.132	
		Inlay	0.002	Silver	7440-22-4	56	0.006	0.011
				Copper	7440-50-8	22	0.002	
				Zinc	7440-66-6	17	0.0019	
				Tin	7440-31-5	5	0.0006	
		Flash	0.0002	Copper	7440-50-8	100	0.001	0.001
		Under Plating	0.0017	Nickel	7440-02-0	100	0.010	0.010
Finish Plating	0.0023	Gold	7440-57-5	100	0.013	0.013		

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21	Switch Housing	DAP Compound	1.45	Antimony Trioxide	1309-64-4	3	0.245	8.156
				Aluminum Trihydrate	21645-51-2	10	0.816	
				Diallyl Phthalate	1344-28-1	45	3.760	
				Glass Fiber	65997-17-3	40	3.262	
				Calcium Stearate	1592-23-0	2	0.163	
22	Switch Cover	PBT	0.8	Glass	65997-17-3	30	1.350	4.500
				Antimony Oxide	1309-64-4	2	0.090	
				Antimony Compounds	7440-36-0	3	0.135	
				Poly(butylene terephthalate)	30965-26-5	65	2.925	
23	Switch Inner Rotor	PBT	0.55	Glass	65997-17-3	30	0.928	3.094
				Antimony Oxide	1309-64-4	2	0.062	
				Antimony Compounds	7440-36-0	3	0.093	
				Poly(butylene terephthalate)	30965-26-5	65	2.011	
24	Switch Outer Rotor	PBT	0.25	Glass	65997-17-3	30	0.422	1.406
				Antimony Oxide	1309-64-4	2	0.028	
				Antimony Compounds	7440-36-0	3	0.042	
				Poly(butylene terephthalate)	30965-26-5	65	0.914	
25	Detent Spring	Beryllium Copper	0.0428	Copper	7440-50-8	98.1	0.236	0.241
				Silicon	7440-21-3	0.2	0.0005	
				Beryllium	7440-47-7	1.5	0.004	
				Aluminum	7439-90-5	0.2	0.0005	
26	Spring Helper	Beryllium Copper	0.0187	Copper	7440-50-8	98.1	0.103	0.105
				Silicon	7440-21-3	0.2	0.0002	
				Beryllium	7440-47-7	1.5	0.002	
				Aluminum	7439-90-5	0.2	0.0002	
27	Contact Button X2	Silver	0.016	Silver	7440-22-0	100	0.090	0.090
		Under Plating	0.00004	Nickel	7440-02-0	100	0.0002	0.0002
		Finish Plating	0.0003	Gold	7440-57-5	100	0.002	0.002

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28	Moving Contact X2	Beryllium Copper	0.0748	Copper	7440-50-8	78	0.328	0.421
				Silicon	7440-21-3	19.5	0.082	
				Beryllium	7440-47-7	2.3	0.010	
				Aluminum	7439-90-5	0.2	0.001	
		Plating	0.0054	Tin	7440-31-5	100	0.030	0.030
Total weight		17.778						

**This Document was updated on:** May 16, 2007

**Important remarks:**

1. It is the responsibility of the user to verify they are accessing the latest version.
2. RoHS exemptions used: lead in glass (5); lead in copper alloys (6)
3. Per [Product Update Memo SC2436](#), this MDS is under revision. The updated version will be posted soon.